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MERRICK'S REPORT ON GAS MANUFACTORIES

Report, upon an examination of some of the Gas Manufactories in Great Britain, France, and Belgium, under a resolution passed by the Select and Common Council of the City of Philadelphia, January 2d, 1834, authorizing the Gas Committee to engage a competent person to proceed to Europe for the purpose of examining Gas Works, with a view of obtaining the best information as to the construction of works, the manner of manufacturing Gas, and in general make such observations as may be useful, in the event of Councils determining to adopt a plan for lighting the city with Gas.—By S. V. Merrick.

To the Select and Common Councils of the City of Philadelphia.

(*Concluded from page* 22.)

Having in the preceding remarks attempted to show the system to be pursued for the carbonization of coal on the most economical plan, our attention is next called to the capacity of works required to meet the wants of the city, the mode of construction, and their location, before proceeding to describe the machinery in detail.

To determine the ultimate demand for gas, to supply with light an improving city like Philadelphia, is a task for which we can command no certain data, and which, if attempted, must be purely hypothetical.

Before planning new works, the usual and most natural course is to make an approximate estimate of the wants of the place, and probable demand; but in most old works that have come under notice, laid out upon such estimates, the demand has increased of late years so unexpectedly, that the sites and arrangements are found far too limited for present purposes, and the respective parts of these establishments are in many cases disproportionate to the work required of them.

To plan works on any hypothetical calculation as to eventual demand, would without doubt be a fruitful source of error, requiring some parts more extensive than would at present be required, with the risk of their being too small for future exigencies.

Such estimates, therefore, are only requisite for the purpose of determining the size of the leading mains, or great arteries, for the transmission of the gas from the works to the city, which without doubt ought to be laid of sufficient capacity to meet any contingency; but for the works themselves, the estimate of capacity should be confined to the probable present demand, and the establishment constructed complete as a whole to meet that demand, leaving the future wants to be supplied by a similar range of works constructed by the side of the original establishment.

The advantages which may be expected from such an arrangement, I apprehend will be,

First. That the works may be built upon a uniform and symmetrical plan, with the capacity of each part calculated to meet the wants of every other part.

Second. That no unnecessary capital may be expended in preparing, on a scale commensurate with future wants, parts of the work now required of a small dimension—such as purifiers, condensers, &c.

Third. That in any future increase, the fullest advantage may be derived from our own experience, and the advancement of the art elsewhere, in adopting improvements that may occur.

A fourth reason for recommending the plan of a series of minor works has forced itself on my attention, while passing through some of the great works of England, viz. the difficulty of preserving a uniform system of working, and of placing individual responsibility on the workmen engaged in managing long ranges of retorts.

I have scarce ever seen in a large work a uniformity of heating, or found the superintendent who could form an accurate judgment of the result of any particular mode of operation.

In such establishments, a general knowledge of average operations can be readily attained, but nothing definite. It is all important in a work where so much depends upon the care of stokers, that means should be in the hands of the manager to judge accurately of the operations of each, which can only be effectually done by sub-dividing the work, having a station meter attached to each division, to record the product of every bench of retorts. I have generally found small works doing much better than those upon a large scale.

It is probable that the cost of labour will be a little enhanced during the summer, when full work is not required; but this disadvantage will be more than counterbalanced by the important benefit that will result by being able to keep the operation of the works under the most perfect control.

In selecting a site upon which to construct the works, the choice must be governed by very simple principles.

The specific gravity of the gas being less than that of atmospheric air, the natural tendency of that fluid is to ascend; the level therefore, of the distributing station, should be at the lowest point of the plane to be lighted. Such a location is always desirable, and if it can be obtained, should be preferred; but as it is not always practicable, experience has shown that considerable depression may be overcome without affecting in an undue degree the equality of the issue at the burners.

When great descents are to be overcome, distinct stations are deemed necessary, effectually to attain this object. I apprehend that without resorting to this expensive mode of regulation, depressions of forty feet may be overcome in a district so small as this city.

The evil resulting from inequality of pressure is most felt when the gas is sold by the time of burning, and not by the quantity consumed.

In the former case the consumers are very careless about regulating the issue of their gas, as the expense to them is unchanged, and the cost of the additional quantity consumed by those burners, placed on an elevated position is borne by the gas maker. If, however, the meter system is adopted and carried into universal effect, the consumers take care to regulate their flame to their own wants, and no loss accrues to any one.

Other important considerations in fixing the location, are convenience to navigation, to a coal market, and to a market for vending coke. All the materials used in the manufacture of gas are bulky, and consequently of expensive transportation. To avoid this additional cost,

is a matter of paramount importance. It is fortunate that the natural position of the city is such, that an easy distribution of gas is compatible with all these objects.

Under the view here stated, it is only requisite to enter into an estimate of the capacity of works suitable to the immediate wants of the community, giving a general idea of the probable cost of their construction.

This estimate will be based on the supposition, that the most populous part of the city will first claim the attention of Councils, and that provision for four thousand public and private lights, will probably be sufficient to meet the demand for two or three years, divided in the ratio of three hundred public and thirty-seven hundred private burners. In estimating the capacity of the works for the supply of this demand, the greatest quantity of gas required in any one night, must be the basis of calculation.

Say 300 public lights burning thirteen hours, at four feet of gas per hour, 300+4+13,	15,600
3700 private burners, average time of burning four hours, at four feet per hour, 3700+4+4,	59,200
Total gas required in one night, cubic feet,	74,800

It has already been shown that the retorts recommended, will carbonize one and a half bushels of coal at a charge, which, at six charges in twenty-four hours, makes a total of nine bushels of coal to each retort.

How far we may be succesful in obtaining a coal, which will yield a quantity of gas equal to the New Castle coal, is yet to be determined; but I feel warranted in saying that there will be no difficulty in obtaining a material to produce twelve thousand feet of gas to the chaldron; and shall, therefore, estimate the produce of each retort at three thousand cubic feet.

To insure against accident and loss in distribution, there will be required a bench of thirty retorts to produce this quantity; and, on that scale, recommend that the works be constructed.

In stating this proportion of public and private lights, it should be observed, that the ratio is likely to diminish after the pipes pass into streets less occupied for business, until the gas is generally introduced into private houses.

In estimating the cost of the station here described, it must be observed that the data are of the most general character, because, until the location is fixed, the works laid down in detail upon plans, and a knowledge is had of what walls, levelling, wharves, &c. are required, no accurate estimate can be given.

It is sufficient for our present purpose to say, upon a comparison with similar stations in England, and making due allowance for difference of cost in the two countries, that the station here noticed will not exceed thirty-five thousand dollars, and probably come much under that sum. This is exclusive of mains to convey the gas into the city, or effect its distribution when there; but includes the retort house, gasometers, and all other apparatus necessary.

After taking a view of the carbonizing process, a brief sketch of the machinery required to prepare the gas for use, and distribute it over the city, will close this part of the subject.

After leaving the retorts, the gas passes through a large pipe, termed the hydraulic main, in which it deposites a part of the tar and ammonia which flow into their proper receivers, and itself goes to a vessel called the condenser.

The process of condensation first claims our attention, and on the judicious selection of apparatus for this purpose, will depend, not only the ready purifaction of the gas, but prevent an accumulation of offensive matter in the street mains.

The general impression appears to have been, that the only requisite to insure a perfect condensation of gas is a reduction of temperature; but it would appear from some circumstances, that more is required, and that the process is effectually completed only by bringing the gas into contact with cold solid substances. In some of the works in Scotland, this principle is carried out to an extreme length, and their condensing apparatus is arranged so as to filter all the gas through vessels filled with "fern," "oak twigs," "stones," or any other substance, the effect of which is to separate the particles of gas from each other during their passage, and bring them in contact with the substances through which they pass. So far as observation leads to a correct opinion, it would appear that works in which a reduction of temperature alone is regarded, the condensation is but imperfectly completed; but when means are taken to bring the gas in contact with solid substances by filtration, or a constant change in the direction of the conduit, the effect is made evident by a more perfect condensation.

In works which have come under notice, the condensers are made in every variety of shape which suited the views of the constructor; without, however, in many cases, keeping in mind these principles. While it would be a useless task to describe each variety, they may be divided generally into two classes: the air, and the water condensers, or those in which the temperature is reduced by the action of the air, or by immersion in water.

The water condensers are usually either pipes immersed in water, or oblong boxes of cast iron, communicating at their ends, and extending from two to seven hundred feet in length; or in some cases, upright pipes, connected at the top and bottom, surrounded with a cast iron tank, filled with water.

The air condensers are usually a series of upright pipes, connected at the top and bottom, having vents at the lower bends for the discharge of the condensed matters, tar, &c.

The general principles upon which this part of the apparatus is to operate, being known, its form may be varied to suit the circumstances of the place in which it is to be erected; and that form which is the simplest, taking up the least space, and which costs the least money, is undoubtedly to be preferred, provided it will perform its functions with equal certainty. As the air condenser comes under all these conditions, I give it the decided preference, taking care to vary its form from the mere series of pipes, so as to increase the surface with which the gas may be brought in contact.

The first impressions natural to a view of this condenser is, that during the heat of summer, the temperature of the atmosphere may be so high as to disable it from producing the desired effect; but this is not the case, for by the aid of a small stream of water, sufficient to keep the outside of the pipe moist, an evaporation takes place which reduces the temperature as low as is desired, while at all other seasons the object is gained by an exposure to the air alone.

The usual mode of construction is to erect the pipes on the north exposure, protected from the direct rays of the sun, and appears in many respects preferable to the water condenser.

The tar and other condensible substances having been deposited from the condenser into their proper receivers, the volatile products, or gases, flow to second vessels, called purifiers.

The volatile products from the distillation of coal are various in their nature and properties, being valuable for the purposes of illumination, in proportion as the pure olefiant gas and carburetted hydrogen can be separated, and preserved distinct from the other products.

To separate these valuable gases from the others, numerous plans have been put in practice successfully, but all with the same agents.

The heavy or condensible matters have all been partially disposed of; but there still remains in solution some portion of ammonia, and all the gaseous products which cannot be condensed.

To effect an entire deposition of ammonia, requires the presence of water, for which it has a strong affinity, while lime has been found the best material for depriving the gas of sulphur, the impurity held in the largest quantity, and of the most deleterious quality. The effect produced by its presence during the combustion of gas, is to send forth a suffocating odour, and to tarnish metallic polishes whenever it comes in contact with them.

Water and lime therefore being the substances best adapted to separate the impure matters from carburetted hydrogen gas, it naturally followed that a solution of lime in water was first used for the purpose of purifaction, and vessels on various constructions rendered subservient to this purpose, by passing the gas through the liquid, keeping the lime in solution by constant agitation, and changing the water whenever the application of gas to paper saturated with acetate of lead or nitrate of silver, was found to produce a change of colour; experience soon taught the operators that it was requisite to wash the gas in three distinct changes of water to free it entirely from its impurities.

So far as regards the economy of material only, this plan has undoubtedly the advantage, because the particles of lime, being held separately in solution, may each individually be brought into contact with the gas and be saturated with impurities; an effect which cannot be produced so perfectly when the lime is not held in solution, owing to the amalgamation of many particles together, which protect each other from the action of the gas.

This process, however, must, in some degree, prove a nuisance, from the difficulty of getting rid of so large a quantity of liquid material, impregnated with nauseous vapours.

To avoid the disagreeable effects, upon persons residing in the vicinity, by whom complaints were often made, recourse was had, in many cases, to a discharge of this refuse under ground, into neighbouring rivers or streams; but when this was deemed objectionable, extensive cess pools were resorted to, from which the liquid was gradually conveyed under the retorts and evaporated. By any mode, the discharge of this fluid is troublesome, and requires great care to prevent its becoming offensive to those residing near the works.

The disagreeable nature of this residuum led Mr. Phillips, of Exeter, to propose the purifaction of gas by means of dry lime, and to construct the proper apparatus for its use. The plan proposed by this gentleman, with some modifications, has obtained precedence very generally in Great Britain; and is now adopted, except in some of the larger works, which still adhere to the original plan of wet lime.

The original expense of material, by the dry lime process, may generally be considered as double that which is incurred by the wet lime process; but this cannot for a moment be considered, when placed in connection with the entire freedom from nuisance; of which the dry lime process is susceptible.

It has been said that the presence of water is necessary to absorb the ammonia. The process of Mr. Phillips was called dry lime, in contradistinction to the lime cream or wet lime plan; while, in fact, the lime is saturated with water to a consistence that would adhere, if pressed between the fingers.

In some cases, this admixture of water, together with the condensation, was deemed sufficient to free the gas from ammonia; but the process being imperfect, recourse was had to washing the gas in clear water, previous to condensation, with success. It has been found advisable to pass the nascent gas from the hydraulic main, through a reservoir of pure water, which takes up much of the ammonia that would otherwise be lost; producing a highly saturated liquor of value, and materially assisting the process of condensation.

The dry lime purifiers, consist of a series of large square boxes of sheet iron, having projections placed on the sides, to receive sieves or wire gratings, upon which lime, slacked and moistened, is laid in strata of one to three inches thick, as lightly as possible, so as to allow the gas freely to percolate through. At the Paris works, a stratum of fern, or moss, is spread on the sieves under the lime, to assist its free circulation.

Considering therefore, that the works may, if properly arranged, be freed entirely from all offensive or disagreeable odour, by the adoption of the dry lime system, it appears to me far better to overlook the difference between the economy of the two plans, and adopt it in any works to be erected in this city.

In the construction of gasometers, many improvements have been made of late years, tending to reduce the expense and simplify their action.

The constructors have at last discovered, that as gas may be safely retained in a vessel no stronger than a silk balloon, there is no occasion for building gasometers strong enough to retain steam, and the heavy iron and wooden framings with which they were formerly encumbered, are dispensed with. No ribs or braces are now inserted, except such as are required to keep the vessel in shape until filled with gas.

The capacity of gasometers must, of course, vary with that of the works. It is not generally the custom, but I think judicious, to have nearly as much gasometer room as the retorts can fill in a day. In many instances the disadvantage, from being cramped in gas store room, I found very manifest. In the depth of winter, when the demand for gas is at its maximum, the want of an adequate supply, in store, is often severely felt; and, in some cases, resort has been had to working extra benches of retorts for the night only. The consumption of fuel during the day, to keep up the heats for night work, must necessarily be very disproportionate to the object gained.

The necessity of letting down retorts, during the suspension of public lighting upon moon-light nights, is an evil which can only be remedied by an excess of store room. Indeed, in many places, where the capacity of the gas-holder is too limited, it is found expedient to keep the public lamps lighted during moon-light nights, rather than incur the expenses of letting out and reheating retorts.

It is believed, therefore, that true economy points out the policy of a full share of store room, notwithstanding the expense is considerable, especially in a new and growing work where extensions may be looked for very soon.

The store rooms being determined, the capacity of the gasometers must approach the quantity already named of seventy-four thousand feet.

To avoid accident, it will be judicious to have this capacity divided into two vessels, which will fix the size at 50 feet diameter, by 18 feet deep, vessels well proportioned and of convenient dimension.

Gasometers of this size do not require counterbalancing, as the pressure upon the gas, to sustain the whole weight, will be less than the resistance due to a column of water three inches high, a pressure quite convenient when the weight of the gasometer is not used to regulate the flow to the burners.

The usual method now adopted to equipoise large gasometers, is to insert cast iron frames on the top of the tank, with guide rods and friction rollers to preserve a steady motion up and down, allowing the vessel to play upon the gas within.

This plan is far preferable to the old plan of suspension from the centre of the gas holder crown, which was liable to the objection of creating a flickering in the lights, whenever the vessel was agitated by external causes. Another method of suspension has lately been put in practice, which answers even better than the guide rods, for keeping the vessel steady. This is to suspend at three points, with chains tending to and terminating at one point, by a triangular frame of

wood work; to these chains connected a counterbalance is hung.

The plan of triangular suspension has one decided advantage, in a climate liable to falling or drifting snow. The weight of snow falling on one side of the vessel will not affect its perpendicular position, while, with the guide rods such an accident might affect the free play of the gas holder.

On the whole, the triangular suspension appears preferable, and the expense not much more than the guide rods, the weight required being merely sufficient to keep the gas-holder steady.

The practice of enclosing gasometers within buildings, which from their size, must entail a heavy expense on the establishment, has long since been abandoned, and they are now universally placed in the open air, even in the northern part of the island, where the climate is quite as severe, as that in which we are placed There may perhaps be seasons in which the extreme severity of the weather will affect the water in the tank, but in general the constant supply of fresh gas at a temperature much above freezing point, will prevent any accident from impeding the free motion of the gasometer, while temporary precautions may be taken, if ordinary means should fail.

The liability to frost is the only objection which can be raised against the exposure of gas holders in the open air, and the ease with which that evil is guarded against, precludes the necessity of incurring the heavy expenses incident to the construction of buildings.

There is another advantage, however, which ought not to be overlooked; I allude to the impossibility of any serious accident occurring from the explosion of gas in vessels placed in the open air.

It has been shown on a former occasion, that the only time that a gasometer can be put in a condition liable to explosion, is during the act of expelling the air and introducing the gas in the first instance, but, that afterwards if a rent or hole be made in it, the only evil that can result, is a loss of gas; for the weight of the gasometer will cause the gas to flow out of such hole, and entirely prevent the admission of atmospheric air to create an explosive mixture within. It is clear, therefore, that if the gas escapes by accident or design, the loss in the open air is the sole evil to be apprehended as an explosive mixture cannot be formed outside of the gasometer, there being no building to confine it. The danger from explosion is an evil, the fear of which has long since passed away in all places where gas is in general use. It is there looked upon as an idle chimera.

The nature and properties of gas are now so well understood, and the precautions to prevent accident so well known, that notwithstanding the immense number of works existing at this time, a disaster is of rare occurrence, and when it does happen, the injuries are not extended as formerly, beyond the damage done to the vessel itself, where the explosion takes place.

The tanks to contain water, into which the gasholders are inverted at some works, are cast iron plates bolted together, with a bottom of same material, but more generally of brick or stone, having the bottom well puddled before the pavement is laid, and the outside round the wall secured in the same way.

The latter method is preferable, whenever the nature of the ground will admit of such a structure, both on account of the greater economy in the construction, and because the brick being a worse conductor of heat than iron, the water is less liable to be affected by frost. In such cases it is usual to sink the tank entirely beneath the surface, thus keeping the gasometer as low as possible.*

* The accident which recently occurred at the Ratcliffe works, London, where the gasometer tank, (being an old brewhouse vat,) burst with the weight of water, shows us the importance of sinking the tank under ground, to prevent the possibility of such a disaster.

Having disposed of the gas when made in its storehouses, we have to consider the mode of distribution to the consumers, and the regulation of the pressure, so as to insure an equal flow at the burners, points which materially affect the value of the works as a source of public convenience.

The gas is conveyed through the streets in mains or pipes of cast iron, to determine the proper size of which has heretofore been a difficult task, and one which has proved a fruitful source of error and vexation.

To avoid the heavy expense incident to laying down great mains, engineers have often erred on the other extreme, and contented themselves with pipes far too small for the wants of the public; an error which has in some cases led to a useless expense in laying mains unnecessarily large.

Unfortunately, there are even at this day, no fixed principles known respecting the flow of æriform fluids which will guide us surely in determining this point; but we must be guided by the experience of others, applying as nearly as possible their practice to our circumstances.

Before entering upon this subject, it is proper to determine the quantity of gas which will be required to pass the leading mains in a given time, and the location of the works from which the mains are to be laid.

The first reply as to the quantity of gas required, must be a mere assumption, for no one can prophesy the extent of the demand.

In Great Britain, it has, in growing towns, almost invariably exceeded the most sanguine calculations, and we are not likely to be behindhand in appreciating an improvement, when the value is once understood.

I cannot assume, however, a demand of less than twenty thousand lights, including public and private; suppose for the eastern front of the city, fourteen thousand, and for the western front six thousand, consuming an average of four feet per hour.

To supply the eastern front, (dispensing with gasometer stations,) will require to be passed in one hour 14,000+4, equal to	56,000 feet.
Western front, 6,000+4, equal to	24,000
Total consumption in one hour in cubic feet,	80,000

In estimating the size of the mains, it is requisite to know the location of the works; because, if they are to be placed on the eastern front, either above or below the city, it is clear that the mains must be of a capacity sufficient to pass the whole quantity within the city limits; but if the location formerly selected be still adhered to, on the western front, then the part of the city between the works and Broad street, may be supplied direct from the works, while the main need only be of a capacity to pass that portion required for the eastern front.

By this means, Broad street will be the point from which the draught on the main will commence, and to which the pipe must be of sufficient capacity to convey the whole quantity required as fast as it is consumed on the eastern front of the city.

By ascertaing the delivery of gas through mains, in such cases as I have been able to make observation, I have found one instance of a six inch main, extending the same distance, in which a pressure of six-tenths of an inch was ample to deliver the gas at a velocity of ten feet per second. Taking into consideration the difference of friction in a pipe of such dimension, and in one, the capacity of which will be sufficient for our purpose, we may feel quite safe in laying a main which will pass the required quantity at the same velocity, or even something less. The discharge through the main alluded to, being seven thousand feet per hour at that pressure, or one-eighth the quantity stated before, the

main, according to this rule, must be eight times the capacity, or seventeen inches diameter; but as the rubbing surface, or area, in proportion to the quantity passed, is so much less in the latter than in the former, I should not hesitate to reduce the size to fifteen inches diameter, believing that the proportional diminution will be compensated for by the difference in the friction.

In this I am confirmed by reference to another instance, where 23,000 feet per hour are passed five sixths of the distance through a main ten inches in diameter, which would give the size required to pass 56,000 feet per hour, by the same rule, 15⅝ inches diameter; this example shows a decrease of friction in greater ratio than in the length of the pipe.

Whether this main of so large dimension should be laid at once, or divided into two, of half the capacity each, may be hereafter determined, when the plan of distribution comes under final consideration; it is sufficient for our present purpose to know the whole size which will be required.

The capacity of this main has been considered, without reference to any assistant station for storing gas or regulating pressure.

It will be recollected that, on a former occasion, the committee of councils deemed it necessary to appropriate a station on the eastern front for this purpose, and designated the public lot in Dock street as a suitable position. In doing this, they certainly acted with sound judgment, believing that the regulating station there, would have great effect in preserving an equal flow of gas from the burners in all parts of the city; and it is quite possible that a resort to a regulating station on the eastern front may, in the event, be found not only useful, but necessary. As however, there seemed to be a strong objection among many citizens to such a disposition of that lot, I took some pains, by comparing the situation of this city with others, to ascertain whether the descent from Broad street was likely to affect the flow to such a degree as to render an easy regulation impracticable, and now feel satisfied, that if the mains are of ample size, no difficulty will arise in distributing from works on the Schuylkill, without any auxiliary stations whatever.

If experience shall testify to the correctness of this opinion, a very heavy expense in stations will be saved. It is possible that a difficulty may occur on the eastern wharves, which being the lowest point, may be affected by unusual draughts from above. The only evil to be apprehended is, that as there will be an excess of pressure on the upper burners of 4–10ths of an inch over those on the lower level, the size of the apertures in the burners will require to be varied, to meet the difference in the rapidity of flow; an inconvenience of no great moment, as it will affect principally the burners below Front street, where more than half the depression takes place.

It is not, therefore, deemed expedient to take any measures to provide for the regulation of pressure beyond what may be accomplished at the manufactory, until experience proves the necessity.

The mode adopted in some works, for regulating the flow of the burners, is by taking off, or adding to the weight which counterbalances the gasometer. But this is a clumsy and laborious plan, one likely to prove defective, unless the gas-holder is nicely poised with compensating weights. Instead of this arrangement, the conical valve has been substituted, which, by being closed or opened, regulates the quantity of gas flowing from the gas-holder through the exit pipe, by changing the size of the opening.

This valve is sometimes opened by hand, but its regulation by the judgment of the workmen, does not in all cases answer the desired end, for if a number of lights are suddenly extinguished; the additional pressure on the pipes causes an excess of flow, through all the remaining burners; thus, although long experience enables the workmen to regulate with tolerable certainty, yet errors and loss of gas will constantly happen.

To remedy this evil, a self-acting governor has been put into use, which consists of a small gasometer, to which is attached the stem of the conical valve. This gasometer is counterbalanced to the weight required to force the gas to all the burners. Any change in the consumption of the gas, operates at once to raise or depress this gasometer, and of course regulates the flow by closing or opening the conical valve. Thus with a self-acting governor, the flow and pressure upon the mains is regulated with great nicety to the exigencies of the moment, requiring only that there shall be more weight upon the main gas-holder than upon the smaller one.

The plan for laying pipes as usually practised, is perfectly well understood here, differing from water pipes only in one particular, that is, a regular grade of elevation and depression must be preserved, in order to give a descent for the flow of condensed water, (which sometimes accumulates in the pipes,) to certain points where it may be received into suitable receptacles, and removed, otherwise an obstruction in the flow of gas might occur.

These recipients are called syphons, or more properly condensed water boxes, and are to be provided at every point of depression.

The mains require to be laid out of reach of the frost; in this climate from eighteen to twenty-four inches below the surface. They are usually laid on each side of wide streets, or if narrow, one row in the middle is ample, the openings or trenches being made and closed on the same day, so that the passage of the street is never materially impeded to the inconvenience of travellers; so slight a trench being made, that the earth is easily rammed in and the pavement relaid without waiting for the natural settlement of the earth.

A method has been partially adopted lately, which I think far superior to the old mode, in all cases, where the pipes are laid over solid ground. By this plan the hubb of the pipe is bored, and the small end turned each with a very slight taper. The two ends of the pipe being covered with a mixture of white and red lead, are entered, the small end into the hubb, and driven home with a mallet. The joint thus made is perfectly tight, and the taper so slight, that no contraction by change of temperature will render them subject to leak. It is plain that this mode of making joints can only be carried into effect in straight lines, or with slight curvatures, in all other cases the old plan of lead joints must be resorted to.

Where the lines are straight as in this city, great facility is presented for using the bored and turned joints, which are undoubtedly preferable to lead joints wherever they can be introduced.

The service pipes from the street main to private meters are sometimes made of small cast-iron tube of three-fourths or one inch diameter, but more generally of malleable iron or lead. The use of malleable iron for this purpose has been almost universal, but it has been found, that whenever it comes in contact with ashes, gravel or sand, it is acted upon and destroyed in ten or twelve years, while in clay no such difficulty is experienced.

The extreme ductility of lead, which is often used, renders it objectionable; being liable to short bends, in which water may lodge, and obstruct the flow of gas. To obviate this, lead pipe is sometimes laid in grooved brick, which effectually overcomes the evil, while the expense is enhanced beyond that of iron pipe.

For internal tubing, lead or tin is often substituted in place of copper, of which metal the small tubes were formerly almost universally made.

It has been found that the hard solder joints of the copper tubes were apt to crack in the bending, the cracks being almost imperceptible, but still sufficient to

cause an escape of gas, and an unpleasant smell. The tin or lead, being too ductile to crack, answers the purpose exceedingly well, in all places where the pipes can be supported in a straight line. The apparatus for internal fittings, burners, &c. are as various as the taste of the maker or consumer may desire. Samples and drawings of most of those made at Birmingham are in my possession; together with the prices of every article appertaining thereto.

After thus taking a view of the most approved process of manufacturing gas, and plan of distribution, there remain several points, to which, by the instructions, my attention has been directed; among the most prominent is the nature and disposition of the residuums left from the carbonization of coal.

The only residuums which will be available, are the coke, the ammoniacal liquor, and the tar.

For the coke, there is no doubt, an ample market will be found. The high price of charcoal, for which it is a substitute of value, both for the use of founders and for culinary purposes, ensures for it a ready sale; the price bearing a proportion to the cost of the coal from which it is produced.

The ammoniacal liquor is useful for the manufacture of salammoniac, and sells for a small price in Baltimore, where there is a manufactory of that article. The produce of a chaldron of coal is from 20 to 30 gallons, but need not be considered of much value here for some years, or until a sufficient quantity is produced to make it worth manufacturing; for the cost of transportation to Baltimore would make that market of little avail to the works in this city.

The last residuum is the tar, which, in many ways, is of value.

It will sell, in its raw state, for a fair price; but when the quantity is considerable, a good profit may be derived from it, by extracting the naptha, now an article used to some extent in the manufacture of gum elastic; which leaves after distillation, about half its bulk of concentrated tar, more valuable than in its original state.—Of the process of manufacturing the naptha, I have obtained a description. Under all circumstances, it is extremely valuable as a fuel for heating the retorts.—Three gallons being estimated, for that purpose, equal to a bushel of coke.

The consumption of tar as fuel, in connection with an equal quantity of water, is practised in some works; and the advantages derived from this combination being doubted, have elicited much spirited controversy during the past summer; to this plan my attention was called, during a visit to Mr. Rutter, the inventor, at Lymington. It is the usual custom, in most gas works not situated convenient to a market for tar, to consume their product, by conveying it through a tube upon the red hot bed of fuel on the grate bars. This process, from the quantity of smoke discharged, and the deposite of solid matter on the other fuel, gave clear evidence of the imperfection of its combustion, and that but a small quantity was made available for the purpose of heating the retorts.

To give the burning tar, in which the carbon is in excess, its due proportion of hydrogen for the production of flame, and oxigen for its support, Mr. Rutter introduced a portion of water, by the decomposition of which, a complete combustion of the tar was effected, and the whole of its heating properties made available.

Without taking any part in this controversy, I may be permitted to say, that in no works in the kingdom, which came under notice, was there any thing like so perfect a combustion of the tar, as in those where this process was used, and I had a fair opportunity of comparing the economy of the heating process with and without its use, in the same works, which gave decided evidence of the saving effected by the plan of Mr. Rutter.

The prices at which the residuums are sold, being dependent entirely on local circumstances, vary so much, that no useful purpose would be accomplished by detailing them. In some works, the price of coke is fixed from time to time, to cover the price of the coal used to make it, and the other residuums considered of no value for sale. In others, on the contrary, the coke is quite unsaleable, and consumed as the only means of getting rid of it. At some works, too, the refuse lime is sold for prime cost, as manure, being considered, from its strong impregnation with ammonia, as being improved in quality for that purpose; in other places, where lime is not valued as manure, this product is but refuse.

For the value of these residuums, we must refer to our own circumstances, and are justified in saying, that the ammoniacal liquor will be of little moment for some time to come, but that the lime, tar and coke, will produce valuable results; indeed, for the latter, an offer has already been made for more than the works will supply.

In disposing of the gas when made, two modes are adopted: the one by meter or measure; the other by jet or burner.

The latter method is open to extensive frauds, and the effects have been severely felt by those companies who have been unable to change the system. The quantity of gas which will flow through the aperture o a given burner, to produce a flame of a given height, being ascertained by experiment, and also the aggregate number of hours during a year for which light is required, a contract between the parties is made, and the jet furnished.

If the consumers would all adhere to their contract, and if the pressure in all parts of the town was uniform, no difficulty would arise; but whenever a customer raises the flame higher than his contract admits, or burns more hours than his agreement, he not only defrauds the manufacturer, but injures all customers who do not take such advantages; because, the manufacturer, to obtain the cost of his gas and his profit, must enhance the nominal price per thousand, requiring the honest customer to pay the same as he who consumes twice as much as he is entitled to; the correct customer is therefore paying for light surreptitiously obtained by his neighbor.

The evils of this system are so severely felt, that some companies do not receive more than one half the value of their gas, taken at its sale price, which they are obliged to keep up, to the cost and disadvantage of the honest consumers.

To avoid this evil, an ingenious mode of measuring gas was contrived in the early stages of the art; which, though liable to some objections, has been gradually improved, until, at this time, all difficulties are in the main obviated. This instrument is called the gas-meter; and consists of a hollow metal drum, revolving in an air tight case, filled to a certain point with water; this drum is divided into four compartments, each having two openings, one for the exit, the other for the entrance of the gas. As this drum revolves, one division fills with gas as the opening ascends out of the water; while, at the same moment, the opposite division descends, and gas is forced, by the water, out of the opening to the burner.

The cubic contents of each division being accurately measured, it is clear that the quantity of gas contained in the drum, and which passes out during one revolution, must be known. This revolving drum acts upon wheelwork, attached to indicators, which point, on a watch dial, the number of revolutions, and of course, the number of cubic feet that have passed through the meter during the time it has been operating.

The meters are usually examined every three months, and the gas used during that time ascertained. The more completely to exemplify the action of this instrument, I have obtained, through the politeness of Mr. Crosley, the maker, a model in glass, which is now on

its way from London; by an examination of this model its construction will be more perfectly understood.

It will be seen that the accuracy of this measurement depends upon the position of the water-line, which must be kept at a uniform height. From want of attention to this circumstance, errors will occur; but the internal arrangements are such, that an error cannot extend far without discovery, in no case exceeding five per cent, and that in favour of the consumer.

The greatest obstacle to the success of the meters, has been the decomposition of the material composing the internal drum, by the action of the gas, or some of its impurities, while stationary. I have seen meter drums, made of sheet-tin, corroded into holes in five years; which, until discovered, recorded false measurements.

After countless experiments, Messrs, Crosleys of London, have discovered an alloy, which is not acted upon by any product evolved from coal, and the use of this composition appears to render the meter an instrument of such accuracy, that it may be depended upon, and should be universally adopted.

Another instrument has been invented in this country, called a dry meter, because it is used without water, which would be an advantage, all other things being equal. This instrument I have not seen, and of course can give no opinion as to its merits.

The price at which gas is sold, in Great Britain, varies rather with the amount of competition and cost of production, than with any reference to the expense of lighting by other means.

The gas companies appear to be in far greater dread of rival establishments, than from oil or candles.—Indeed the latter does not, at this late period, give them a moment's thought; for so many advantages are found to accrue from the use of gas, in all situations where fixed lights are admissible, that little impression would be made on the sale of it, even if the price of other light were reduced below that of gas.

In Scotland, where greater attention has been paid to the quality of the gas, it is now the usual light in private houses, as well as in more public situations. The best houses in Edinburg are thus served, and the consumption of gas is fast increasing.

The extension of gas-lights in private houses, is not so much the result of its cheapness as a material for lighting, but on account of its cleanliness, its safety, and saving of labour; and contrivances are constantly being made to obviate the inconvenience of having stationary lights, the only obstacle to its universal introduction.

In England, it has heretofore been confined in the main, to public streets and buildings, shops, churches, &c.; but its use, in private houses, has begun to spread rapidly, as more care is taken in the purifaction. In London especially, its introduction into private houses has been very limited, for the companies have rather retarded than urged its adoption, finding more profitable consumers elsewhere, who kept pace with their means of supply.

Within a short period, the price of gas has been very materially reduced, varying now from eight to twelve shillings per thousand feet, with a scale of discounts for large consumers by meter, proportioned to the quantity used in the year.

To compare the cost of lighting by gas and oil might be difficult, upon satisfactory data, because the comparisons at the works there, have been made universally with candles. The fine sperm oil of our market, is comparatively little used in England. and sells by retail at from 6*s*. to 6*s*. 6*d*. the gallon. For public lighting, (where gas cannot be had,) Greenland, or other common oils are used, which sell by wholesale at 1*s*, 9*d*. to 2*s*. 3*d*. per gallon, or an average of fifty cents. This is the imperial gallon, which contains one-fifth more than the wine gallon used here for the same measures. This oil retails at 2*s*. 6*d*. to 2*s*. 9*d*. per gallon, and is used for common purposes of lighting. The greater consumption, (excepting gas,) is in candles of various kinds.

In my endeavors to procure a comparison between the cost of lighting by the two systems, I was fortunate in procuring such a statement as may be considered satisfactory, inasmuch as it is the result of a series of experiments made to show the difference between the illuminating power of gas, made in different parts of England, refering each to a candle as the standard of comparison. The result being given during the last summer, in evidence before a committee of parliament, on the application of an oil gas company to change their works for the manufacture of coal gas.

This statement may therefore be taken as authentic, and referred to our own case.

The results being an average of the quantity of gas made in ten manufactories, which by comparison of shadows was found to be equivalent to one hundred pounds of mould tallow candles, (burned clear,) of six to the pound, nine inches long, was twenty-four hundred and seventy-seven feet.

Say 2477 at $3 per thousand, (here,)	7 43
100 pounds of candles, at $10 50, cost	10 50
Difference in favor of gas,	$3 07

or near thirty per cent. This is the saving, under the supposition that the candle is all consumed or made available, and always gives the same clear light.

The prices here stated are the retail prices; but it must be remembered that the gas is measured out to the consumer, and burned as fast as it is measured; consequently he receives the benefit of all that he pays for, leaving the loss to fall upon the manufacturer, of all leakage between the works and place of consumption; while, on the contrary, the loss and waste incident to the consumption of candles, fall upon the consumer, and cannot be estimated at less than fifteen per cent.

Again, during all the period of burning gas, a clear, undiminished light is produced, while any light having a solid material for a wick, must diminish in brilliancy the longer it continues to burn.

Taking into view all circumstances, it must be admitted that the use of gas possesses advantages which can belong to no other means of illumination.

It may here be proper to give some general idea of the amount of capital required to carry into execution the works as here described, which, for reasons already given, must be mere approximations:

The works, as before stated, will not exceed	$35,000
Considering for the moment, that the works will be located on the Schuylkill, north of the Permanent Bridge, and that the leading main will be divided in two, having the aggregate capacity of a main of 15 inches diameter, one now laid will cost	20,000
Pipes for distribution, in all, five miles, say 3 miles of 6 inch. at $3 25 per yard,	11,444
Three miles of 3 inch, at $1 80 per yard,	9,504
	$75 948

If to this sum be added the expense incident to walling, levelling, and wharfing the lot, construction of public lamp posts and lamps, with a floating capital nenessary to keep up the supply of gas, we may consider that a capital of one hundred thousand dollars is quite ample for the works, as here described. As this sum will include the expenses incurred by enclosing the property, laying one half the great main, and a considerable proportion of the larger pipes of distribution, we may safely conclude, that the second division of the works will not cost more than two-thirds this amount.

In conclusion, I beg leave to suggest, as the result of my examinations on this subject,

First. That all information which has come into my possession, either in Europe or in this country, has tended to confirm the opinion that the proposed system of lighting by "Gas" will be found preferable to any other, as regards economy, safety, and convenience.

Second. That a "gas" manufactory judiciously constructed, and managed with skill and economy, cannot fail to return a handsome profit to its constructors.

Third. That the art of gas-making has so far advanced at this day, as to place within our reach, such information as will enable this city to entertain the measure with a feeling of perfect security as to the result.

Fourth. That the objections to the measure, and fears expressed by many valued citizens on a former occasion, are either totally groundless, or very easily obviated, and that the effects which will be produced by a judicious execution of the measure, will be beneficial, both in a moral and pecuniary point of view.

Fifth. That the improvements made within a few years, render it an easy task so to construct the works as to avoid all danger from explosions, or inconvenience from the offensive nature of the process, or residual matter connected with the manufacture of gas.

Sixth. That the works be constructed upon a moderate scale, commensurate with the immediate wants of the city, and made complete, but that land sufficient for the increase of the works should be appropriated for their extension, to satisfy the demands in all parts of the city, and that the mains or pipes be laid of such capacity as to ensure their aptitude for any future demand.

All which is respectfully submitted.

S. V. MERRICK.

December 11, 1834.

RATES OF TOLL

To be charged on the Pennsylvania Canal, from and after the first day of February, 1835.

ARTICLES.		Toll per mile. c. m.
Agricultural implements, carts, wagons, sleighs, ploughs and mechanics tools, necessary for the owner's individual use, if accompanied by the owner emigrating,	per 1000 lbs	0 7
Agricultural productions not specified,	do	0 6
Ale and Porter in Barrels,	do	0 6
Apples, Peaches, and other green fruit,	do	0 5
Ashes, leached,	do	0 2
do pot and pearl,	do	0 6
Bacon, Barley,	do	0 6
Bark unground,	per cord	1 0
Bark ground,	per 1000 lbs.	0 6
Beef salted, Beer,	do	0 6
Boards, plank, scantling, and all other sawed timber or stuff calculated at inch measure, except such as is enumerated below, in No. 56 and No. 115, if conveyed in boats or scows,	1000 ft. b'rd ms.	0 7
Do. if conveyed in rafts	do	2 0
Bran and ship stuff,	per 1000 lbs.	0 5
Bricks,	do	0 3½
Buckwheat, Butter,	do	0 6
Burrs, French in blocks,	do	0 7
Charcoal,	do	0 5
Cheese,	do	0 6
Cider,	do	0 5
Clay, earth, sand and gravel,	do	0 2
Coal mineral,	do	0 2¼
Coke,	per 1000 lbs.	0 3
Copper in sheets and manufactured,	do	1 2
Corn, Indian,	do	0 6
Cotton,	do	0 5
Deer, Buffalo and Moose skins,	do	0 7
Drugs and Medicines,	do	1 2
Dry Goods,	do	1 2
Earthen Ware,	do	0 5
Feathers, Fish, salted or fresh,	do	0 6
Flour,	do	0 5
Furniture, household,	do	1 0
Furs, and peltry, except Deer, Buffalo, and Moose skins,	do	1 2
Glass ware,	do	1 0
Grind stones,	do	0 7
Groceries,	do	1 2
Gypsum,	do	0 7
Hardware and Cutlery,	do	1 0
Hay,	do	0 3
Heading and Bolts for Cedar ware,	do	0 4
Heading and Hoop Poles for barrels and hogsheads, if conveyed in boats or scows,	do	0 3
Do do if transported in rafts	do	0 6
Hemp and Hempen yarns,	do	0 5
Hides, raw, of domestic animals,	do	0 8
Hops,	do	0 6
Iron Ore,	do	0 3
do Scraps, Pigs and broken castings,	do	0 4½
do Castings, Blooms and Anchonies,	do	0 8
do Bar, rolled, slit or hammered	do	1 0
Lard,	do	0 6
Laths sawed of less than 5 ft. in length and split laths,	do	0 3
Lead, bar and pig,	do	0 5
do White, Red and Litharge,	do	1 2
Leather, dressed and undressed,	do	1 2
Lime,	do	0 3½
Limestone,	do	0 2
Liquors, foreign,	do	1 2
Live stock,	do	0 6
Mahogany wood,	do	1 0
Manure,	do	0 2
Marble, in blocks,	do	0 3
do sawed,	do	0 5
do manufactured,	do	1 0
Mill stones,	do	0 7
Nails and Spikes,	do	1 0
Oats,	do	0 6
Oil of all kinds, Oysters,	do	1 0
Paints and dye-stuffs,	do	1 0
Paper,	do	1 2
Pork, salted or fresh,	do	0 6
Posts, split or round for fencing, if carried in boats or scows,	per hundred,	0 6
do if conveyed on rafts,	do	1 2
Potatoes, turnips and other vegetables,	per 1000 lbs.	0 5
Queens-ware and China-ware,	do	1 0
Rags,	do	0 7
Rails, split for fencing, if carried in boats or scows,	per hundred	0 4
do if conveyed on rafts,	do	0 8
Ropes and Cordage,	per 1000 lbs.	1 2
Rosin,	do	0 9
Rye,	do	0 6
Salt,	do	0 5
Seed, Clover, Timothy, Flax and other kinds of	do	0 6
Shingles, long, if conveyed in boats or scows,	per thousand,	0 3
do do if conveyed on rafts,	do	0 8
do short, if conveyed in boats or scows,	do	0 2

ARTICLES.	Toll per mile.	c.	m.
Shingles, short, if conveyed in boats or scows,	per thousand,	0	2
do Cedar, if conveyed in boats or scows,	do	0	4
Slate for roofing,	per 1000 lbs.	0	5
Staves for Pipes, Hogsheads and Barrels, if conveyed in boats or scows,	do	0	3
the same, if conveyed on rafts,	do	0	6
do Cedar, if conveyed in boats or scows,	do	0	4
Steam Engines, steel,	do	1	2
Stone, entirely unwrought,	do	0	2
do wrought,	do	0	4
Stone, Soap,	do	0	5
Stone Ware,	do	0	7
Straw,	do	0	3
Tallow,	do	0	6
Tar,	do	0	9
Tile,	do	0	5
Timber, round and square, if conveyed in boats or scows,	per 100 cubic ft.	0	7
do if conveyed on rafts,	do	2	0
Tin and tin ware,	per 1000 lbs.	1	2
Tobacco manufactured,	do	1	2
do not manufactured,	do	0	5
Wheat,	do	0	6
Whiskey and other Domestic Liquors,	do	0	7
Window blinds, sawed stuff for, not exceeding ¼ of an inch in thickness,	do	0	6
Window Glass,	do	0	9
Wood for fuel, if conveyed in boats or scows,	per cord	1	0
do if conveyed on rafts,	do	2	0
Wool,	per 1000 lbs	0	6
On all articles not enumerated, passing Southward or Eastward	do	0	7
On all articles not enumerated, passing Northward and Westward,	do	1	2
On all boats and other vessels used chiefly for the transportation of property,	per mile	3	0
On all boats and other vessels made and used chiefly for the transportation of persons,	do	10	0
On each person over 12 years of age transported in a boat used chiefly for the transportation of property,	do	0	5
On each person over 12 years of age, transported in a boat used chiefly for the transportation of parsons,	do	0	7½

No toll shall be charged for the baggage of any passenger when the weight of the same does not exceed fifty pounds.

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OUT-LET LIFT LOCKS.

The following Toll shall be charged on Boats, Arks, Rafts and other Craft, passing through Out-Let Lift Locks connecting with rivers. For each such passage.

For every loaded ark, Durham or river Boat, and Craft, not built expressly for navigating the Canal, for passing a double lock,	75 cts
For either of the same passing a single lock,	50
For do do if empty passing a double lock,	37½
For do do if empty passing a single lock,	25
For each raft of Lumber,	75
For each boat navigating the Union, and not the Pennsylvania Canal, passing the out-let locks at Portsmouth,	35

Provided, That no Boat, Raft or other Craft, shall be charged for passing the tide lock at Bristol, while the same remains open by the operations of the tide: *And provided also*, that all *Boats*, navigating the Lehigh Coal and Navigation Company's Canal, and likewise "*all river Boats or Arks owned by any person residing on the Lehigh River, shall be entitled to pass the out-let lock at Easton, either going into the river Delaware, or returning therefrom, without toll or charge for such passage.*

Any Boat, Ark or other craft, which may have descended a River running parallel with any portion of the Pennsylvania Canal, and which, on its return voyage, enters and passes upon the said canal, shall pay, in addition to the toll already established, THIRTY CENTS per mile, for every mile such Boat, Ark or other Craft may navigate the Canal.

Every Float lying in, or occupying any public Basin connected with the Canal, except while receiving or discharging its cargo, (for which purpose 48 hours are allowed if necessary) shall be charged 25 cents a day for each and every day such Boat shall remain therein.

WEIGH LOCKS.—For weighing each Boat or other vessel not navigating the Pennsylvania Canal, 50 cts.

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RATES OF TOLL,

To be charged on the Philadelphia and Columbia, and Allegheny Portage Rail ways, from and after the first day of February, 1835.

ARTICLES.	Toll per mile.	c.	m.
Agricultural implements, carts, wagons, sleighs, ploughs and mechanics tools, necessary for the owner's individual use, when accompanied by the owner emigrating,	per 1000 lbs.	1	0
Agricultura lproductions not particularly specified,	do	0	8
Ale and Porter in barrels,	do	0	8
Apples, Peaches, and other green fruit,	do	0	8
Ashes, leached,	do	0	3
Do. Pot and Pearl, Bacon, Barley,	do	0	8
Bark unground,	do	0	7
Bark ground, Beef salted, Beer,	do	0	8
Boards, Plank, Scantling, and all other sawed timber,	do	0	7
Bran and Ship stuff,	do	0	7
Bricks,	do	0	6
Buckwheat, Butter,	do	0	8
Burrs, French in blocks,	do	1	0
Charcoal, Cheese,	do	0	8
Cider,	do	0	7
Clay, Earth, Sand and Gravel, Coal Mineral,	do	0	3
Coke,	do	0	4
Copper in Sheets and Manufactured,	do	1	6
Corn, Indian, Cotton,	do	0	8
Deer, Buffaloe and Moose Skins,	do	1	0
Drugs and Medicines, Dry Goods,	do	2	0
Earthen-ware, Feathers, Fish, salted or fresh, Flour,	do	0	8
Furniture, household,	do	1	4
Furs and Peltry, except Deer, Buffaloe and Moose skins,	do	2	0
Glass Ware, Groceries,	do	1	6
Grind Stones,	do	1	0
Gypsum,	do	0	8
Hardware and Cutlery,	do	1	6
Hay,	do	0	5
Heading and Bolts for Cedar Ware,	do	0	7
Heading and Hoop Poles for Barrels and Hogsheads,	do	0	5
Hemp and Hempen Yarns, Hops,	do	0	8
Hides, raw, of domestic animals,	do	1	4
Iron Ore,	do	0	5
Do Scraps, Pigs and broken Castings,	do	0	7
Do Castings, Blooms and Anchonies,	do	1	0
Do Bar, Rolled, Slit or Hammered,	do	1	4
Laths sawed of less than 5 feet in length and split laths,	do	0	5

ARTICLES.		Toll per mile. c.	m.
Lead, Bar and Pig, Lard,	do	0	8
Do White, Red and Litharge,	do	1	6
Leather, dressed and undressed,	do	1	6
Lime,	do	0	5
Limestone,	do	0	3
Liquors, Foreign,	do	1	6
Live Stock,	do	0	8
Mahogany Wood,	do	1	4
Manure,	do	0	3
Marble, in blocks	do	0	5
Do sawed,	do	0	7
Do manufactured,	do	1	4
Mill Stones,	do	1	0
Nails and Spikes,	do	1	4
Oats,	do	0	8
Oil of all kinds, Oysters, Paints and Dye-stuffs, Paper,	do	1	4
Pork, salted or fresh,	do	0	8
Posts, split or round for fencing,	do	0	5
Potatoes, turnips and other vegetables,	do	0	6
Queens-ware and China-ware,	do	1	6
Rags,	do	1	0
Rails, split for fencing,	do	0	5
Ropes and Cordage	do	1	6
Rosin,	do	1	4
Rye,	do	0	8
Salt, passing eastward,	do	0	5
Do passing westward,	do	1	0
Seed, Clover, Timothy, Flax and other kinds of,	do	0	8
Shingles,	do	0	7
Slate for roofing,	do	0	8
Staves for Pipes, Hogsheads and Barrels,	do	0	5
Staves, Cedar,	do	0	7
Steam Engines,	do	1	6
Steel,	do	2	0
Stone, entirely unwroughtf	do	0	3
Do. wrought	do	0	6
Stone, Soap,	do	0	8
Stone Ware,	do	1	0
Straw,	do	0	5
Tallow,	do	0	8
Tar,	do	1	4
Timber, round and square,	do	0	5
Tin and Tin Ware,	do	1	6
Tobacco manufactured,	do	1	6
Do not manufactured, Wheat,	do	0	8
Whiskey and other Domestic Liquors,	do	1	0
Window Glass,	do	1	4
Wood for Fuel,	do	0	5
Wool,	do	0	8
On all articles not enumerated, passing eastward,	do	1	0
On all articles not enumerated, passing westward,	do	2	0
On the United States Mail, for every ten pounds,	per mile,	0	1
On each Burden Car,	do	1	0
On each Passenger Car,	do	2	0
On each Baggage Car,	do	2	0
On each passenger over 12 years of age, transported in a Car, of any description,	do	1	0
On each passenger between 6 and 12 years of age,	do	0	5

Fifty pounds of baggage will be allowed to each passenger, free of charge. All extra baggage shall be charged at the rate of one mill per mile, for every twenty pounds.

VIADUCTS.—For crossing the Schuylkill Viaduct, the same rates of toll as are now, or may be charged for crossing the Permanent Bridge, over the River Schuylkill, at Philadelphia.

Any person passing over a bridge or viaduct on the Rail way, where toll is or may be chargeable, who shall refuse to pay such toll to the Collector, when demanded, shall pay a fine of five dollars, for each and every such offence.

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WEIGHT OF ARTICLES.

In the collection of TOLL, *all articles are to be charged at their exact weight—but when not weighed, the annexed articles are to be computed as follows:*

Ashes, pot and pearl,	per barrel,	320 lbs.
Beef, salted,	do	280
Brick,	per 1000	4500
Barley,	per bushel	45
Buckwheat,	do	45
Corn,	do	56
Flour,	per barrel	212
Fish, salted,	do	300
Heading for barrels,	per 1000	4500
Do. for hogsheads,	do	5600
Hoop poles for barrels,	do	5600
Do for hogsheads,	do	11200
Lime,	per bushel	80
Limestone, per perch of 25 cubic feet,		4000
Liquors of all kinds,	per barrel	300
Oil of all kinds,	do	280
Oats,	per bushel	30
Oysters,	do	75
Pork, salted,	per barrel	280
Rosin,	do	280
Rye,	per bushel	56
Seed clover, and all other kinds,		56
Staves per pipes,	per 1000	5600
Do for hogsheads,	do	4500
Do for barrels,	do	3750
Stone unwrought, per perch of 25 cubic feet,		3750
Tar,	per barrel of 28 gallons	320
Wheat,	per bushel	60

The foregoing Rates of Toll, to take effect and be in force, from and after the 1st day of February, A. D. 1835.

JAMES CLARKE,
JOHN MITCHELL,
ROBERT M'COY,
Canal Commissioners.

Attest,
FRS. R. SHUNK, Secretary.

THE SCHUYLKILL NAVIGATION COMPANY.

Report of the President and Managers of The Schuylkill Navigation Company, to the Stockholders.—January 5, 1835.

In presenting their annual Report, the President and Managers have the pleasure again to congratulate the Stockholders upon the prosperous state of the Company's affairs.

At the meeting held at the beginning of the year just ended, their anticipations of business and income were clouded by the general derangement of the currency of the nation, and the consequent inactivity of every description of trade, as well as by the oversupply of coal in the preceding year, which had left a large stock on hand. The influence of these causes was felt very seriously in the first half year; but a great improvement it will be perceived, took place in the second, the apprehension of a scarcity of coal, from the short supply in the early part of the season having produced an increased demand for the article, and, as a consequence, a renewed activity in the trade. The total product falls somewhat short of that of the preceding year; but the trade and income for the second half year, beginning from the first Monday of August last, are greater than for the corresponding period of 1833. The aggregate for the whole season of navigation exceeded what was expected.

The new works at Reading having been put into operation so as to supply the place of the former works near that town, a great and constant source of vexation and delay, as well as of uneasiness and alarm, has been effectually closed up.

By means of this, and of other economical arrangements adopted at various points by the Board, the expenses of the Company have been very much diminished; and hence, though the income has been less, the two semi-annual dividends will together be nearly equal to the next preceding ones.

The improvement of the whole line of the works has made it practicable to employ much larger boats than formerly; and the double locks have so accelerated the passage of boats as very much to lessen the time required for making their voyages. Instead of boats averaging thirty to thirty-five tons, and consuming in the descent and return from twelve to fourteen days, the last year's average was not less than forty-five tons per boat, many of them carrying upwards of fifty tons, and the time occupied was only from seven to nine days.

The importance of the Reservoir on Tumbling run has been fully proved during the latter part of the summer and fall. From the 25th of August to the 15th of November, with the exception of about a week, when there was aid from a slight fall of rain, the boats were enabled to carry their usual full loads only by means of a supply of water from the reservoir.

In all the experience of the Board, so dry a season has never been known, and but for the supply from the reservoir the business of the navigation must have been much diminished above the mountain, and materially affected below it; for though the water did not cease to run over the dam at Fair Mount, and many other of the dams, it is scarcely to be doubted that such would not have been the case but for the assistance from the water from the reservoir.

In a former communication the Board stated that they had secured ground for an additional reservoir.—They are of opinion that it should be constructed without delay, for which purpose a survey has been already made, and a draft of the one projected, as well as of the one in operation, is submitted to the Stockholders, together with a report of the Company's Engineer, Edward H. Gill, a gentleman in whom the Board repose great confidence.

The present reservoir contains nine hundred thousand cubic yards. The new one will hold a larger quantity, supplying together about one million nine hundred and fifty thousand cubic yards of water.

Agreeably to the anticipation of the Board, the two new locks at the Vincent canal went into operation on the 4th of July last. The Board would then have suspended their operations until they could have obtained new directions from the Stockholders, as the funds appropriated for doubling the locks were more than exausted; but on examination of the old locks at Kernsville, it was deemed unsafe to depend upon them for another season without extensive repairs, which could only be made to advantage in the summer, and this would have had the effect of delaying the trade for a considerable time. It was therefore deemed indispensable to construct immediately the additional lock contemplated at that place. The work was accordingly begun, and it will be ready to go into operation on the opening of the navigation in the spring.

Another point of equal importance, and requiring early attention, was the lock at the out let of the Girard canal, near to which a considerable slip from a hill had happened in 1824, and filled the canal; since which time, until recently, there seemed to be no further danger, but another inclination to move has been lately observed, which threatens a dangerous obstruction, and it was deemed best, without delay, to construct an additional lock about eight hundred feet above the old one, and entirely out of reach of such a formidable accident. This has been commenced, and will be ready early in the spring. The new lock will obviate all apprehension from this cause.

The Board, keeping in view the directions of the Stockholders to double all the locks at the points where they are combined, determined to proceed with these two indispensable improvements, and to rely on the Stockholders to furnish means for paying the cost, as well as to provide for the other works in which the Board had engaged in obedience to their directions.—They have, therefore, prepared the draft of an ordinance, with an estimate of the sums that will be requisite for the purposes just mentioned, to which is to be added as much more as will be necessary to complete the reservoir and the two locks at Frick's, so necessary to facilitate the trade with the Union and State canals, and such other work as the Stockholders have ordered to be done.

The remainder of the loan, authorized in January, 1833, was raised at the rate of interest of five per cent.

The Board have to announce, with much regret, the decease on the 26th July last, of their late Treasurer and Secretary, Thomas Harper. These offices he had filled with satisfaction to the Board, and with singular integrity and correctness, since the year 1816.

The quantity of coal shipped from the Schuylkill mines in 1834, was	tons 224,242
There were received from the Union Canal	2,450
The mines on the Lehigh produced	106,244
Those of the Lackawana produced	43,700
Making in all	376,636
From the same sources, there came to market in 1833	487,971
Showing a difference in the two years of	111,335

but against this is to be placed the quantity on hand at the beginning of 1834, which may be estimated at about an equal quantity, and showing the supply in 1834 to be equal to that of 1833, except the quantity on hand on the opening of 1833 (computed to be about 60,000 tons) and which entered into the consumption of that year.

It is therefore reasonable to suppose, that on the opening of the trade in the spring very little coal will be found remaining on hand, and that we may therefore count upon a large trade in this article, and a very brisk demand during the present year. Favourable considerations for future estimates are to be found also in the important and extensive improvements of the State on the north and west branches of the Susquehanna, which bid fair not only to conduce to the great benefit of the State, but to add materially to the increase of the navigation on our canal, as the first link of communication.

The completion of the Danville and Pottsville Rail Road, as far as the mines belonging to the city, promises to add very largely to the supply of coal, and its progress to the Susquehanna now rapidly advancing, will bring still further contribution to the trade on our works, which we may be permitted to say will soon be ready for any increase of business that may be required.

Of the quantity of coal from the Schuylkill mines, there were delivered by the way, short of the city.

tons 18,572

The toll on coal, was	$204,033 04
And on other articles,	95,350 91
Making the total receipts	$299,383 95
Of which there was from the ascending trade,	$53,574 91
And from the descending trade,	245,809 04

The whole tonnage conveyed last year, was tons 395,720

Of which belonged to the ascending trade tons 55,953
Ditto descending ditto 339,767
Of the toll which was derived from the Union Canal, there was of the ascending trade $25,967 79
Ditto descending trade 22,961 94

Making a total of $48,929 73
The rents in 1834, from Real Estate, Ground rents, and Water rents, amounted to $16,687 67
And the arrears amount to 5,441 34
The income in 1835, from rents, it is estimated, will be $18,209 82

The Board offer as part of their Report, the following statements;

No. 1. A tabular account of the business of the Company since its commencement, showing the quantity of coal transported, the rents received, and the toll on coal and other articles.

No. 2. A general account current, showing the cost of the works, the Capital Stock, the Money borrowed, the Current Expenses, &c.

No. 3 and 4. Accounts of the various articles which were conveyed up and down the navigation in 1834.

In conclusion, it may be remarked, that after passing through a season attended in its commencement with serious discouragements, the concerns of the Company, with reference to the past, are far more satisfactory than it was expected they would be, and with a view to the future, are more encouraging than at any former period. The works, throughout, are in good order.—The supply of water is made secure, even for seasons the most unpropitious. And the employment for the navigation is steadily increasing, by the constant growth of the trade heretofore carried on, and the continual opening of new sources, the supplies from which will come into this channel. Of the probable results from the extension of improvements by the State or by Companies, as applied to any given period, there are not yet data to form any estimate. All that is certain seems to be, that in a very few years they must greatly augment the usefulness of the navigation to the public and its value to the Stockholders.

In the meantime, however, there is a sure dependence upon the augmented productiveness of its accustomed trade, in a ratio of which some opinion may be formed as to the year now entered upon.

Judging from the past and the present, it is quite within bounds to believe, that the tonnage transported on the navigation will very much exceed that of 1834.

All which is respectfully submitted.

JOSEPH S. LEWIS, President.

January 5th, 1835.

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No. 1.

General Statement of the Business of the Company from its Commencement.

Years.	Total tonnage.	Tons of Coal.	Toll on Canal.	Toll on other articles.	Total toll.	Descending Toll.	Ascending Toll.	Amount of Rents.
1815 } 1816 } 1817 }	No receipts in these years.		$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
1818					233 00			
1819					1,202 16			
1820					803 07			
1821					1,792 60			
1822					1,054 97			
1823					1,964 38			
1824					635 00			
1825		6,500	9,700 00	6,075 74	15,775 74	13,363 74	2,412 00	4,700 00
1826	32,404	16,767	25,147 00	18,961 87	43,108 87	32,968 97	10,139 90	4,900 00
1827	65,501	31,360	33,317 00	24,832 74	58,149 74	42,865 27	15,284 47	6,967 00
1828	105,463	47,284	46,202 00	40,969 56	87,171 56	64,001 56	23,170 00	7,618 00
1829	134,524	79,973	77,032 00	43,007 00	120,039 00	92,186 00	27,853 00	10,574 00
1830	180,755	89,984	87,192 00	60,973 95	148,165 95	105,231 36	42,934 59	13,800 00
1831	196 413	81,854	78,781 00	55,224 32	134,005 92	99,995 52	34,010 40	13,750 00
1832	327,921	209,271	199,784 00	65,045 70	264,829 70	218,218 00	46,611 70	15,207 00
1833	445,849	252,971	228,138 00	97,348 00	325,486 63	263,744 00	61,743 63	16,673 00
1834	395,720	226,692	204,490 14	95,350 91	299,841 05	246,266 14	53,574 91	16,687 67

No. 2.

Statement of the Accounts of the Company, January 1, 1835.

DR.			CR.	
Capital Stock,		$1,652,600 00	General charges, beinn cost of the works, including Real Estate and damages,	$3,048,963 62
Permanent Loans,	$1,341,560 07		Current expenses, being cost of repairs, Salary to Officers, Lock-keepers' wages, &c. this year,	68,110 60
Contingent Fund invested in Loan,	16,039 93		Interest Account this year,	66,566 37
		1,357,600 00	Dividend No. 9, made in August last,	74,299 50
Tolls of 1834, including balance of $3,239 58 from 1833,		302,623 43	Individual Accounts unsettled,	31,650 28
Rents,		16,687 67	Cash, balance,	54,754 04
Contingent Fund,		429 52		
Individual Accounts,		14,403 79		
		$3,344,344 41		$3,344,344 41

No. 3.

Tonnage of Articles ascending the River, 1834.

Merchandize,	19,849	
Fish,	2,962	
Salt,	3,472	
Plaster,	10,070	
Grain,	488	
Iron,	1,829	
Blooms, Pig Iron and Castings,	354	
Nails,	10	
Lime and Limestone,	5,702	
Iron Ore,	3,002	
Bricks,	473	
Porter and Ale,	62	
Lumber,	3,488	
Marble and Stone,	243	
Coal,	2,179	
Flour,	251	
Sundries,	343	
Burrs,	78	
Steel,	12	
Clay,	105	
Sand,	159	
Wood,	299	
Bacon	11	
Whiskey,	20	
Hay,	52	
Gravel,	308	
	——55,821	
Passing Fair Mount only,	132	
	Tons 55,953	

No. 4.

Tonnage of Articles descending the River, 1834.

Coal,	226,692	
Flour,	10,255	
Whiskey,	1,953	
Lumber,	14,803	
Grain,	10,734	
Iron,	1,955	
Blooms, Pig Iron and Castings,	5,844	
Nails,	1,445	
Lime and Limestone,	56,102	
Iron Ore,	1,563	
Butter,	249	
Leather,	349	
Marble,	240	
Stone,	1,767	
Bark,	306	
Wood,	1,101	
Tobacco,	1,147	
Pork,	800	
Sundries,	427	
Steel,	7	
Starch,	57	
Oil,	33	
Glass	175	
Peltries,	38	
Wool,	229	
Cotton,	31	
Rags	121	
Feathers,	43	
Coke	11	
Horns,	2	
Potash,	12	
Sumach,	2	
Ginseng,	16	
Beef,	8	
Bricks,	7	
Merchandise,	40	
	——338,564	
Passing Fair Mount only,	1,203	
Tons	339,767	

RESOLUTION.

Adopted by the Stockholders, 5 Jan. 1835.

Resolved, That, in consideration of the long and faithful services of the late Thomas Harper, Esq. for eighteen years Secretary and Treasurer of the Company, with a very moderate compensation, and as an acknowledgement of regard for the memory of an officer who served the Company with so much zeal and integrity, and died in its service, the President and Managers be directed to present to the Widow of the said Thomas Harper One thousand dollars, together with a copy of this resolution.

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OFFICERS OF

The Schuylkill Navigation Company for 1835.

Joseph S. Lewis, *President.*

MANAGERS.

Manuel Eyre,	Henry Troth,
Jonas Preston,	Charles H. Baker,
Thomas Firth,	John Sergeant,
George W. Holstein,	John Bohlen,
Joshua Lippincott,	Edmund Wilcox,
Lindzey Nicholson,	Joseph T. Mather.

Claudius Harper, *Treasurer and Secretary.*

REPORT OF THE CANAL COMMISSIONERS.

Report of the Canal Commissioners, upon the amount saved to the State in the construction of the Public Improvements by the facilities afforded by them.—Read in the House of Representatives, Jan. 9, 1835.

Hon. James Thompson,
Speaker of the House of Representatives.

Sir:—In compliance with a resolution of the House of the 18th of December last, requiring the Canal Commissioners to report to the House the amount of money saved to the State in the construction of the public improvements by the facilities afforded by them, stating the cost of transporting materials for their construction, as far as they have been transported on any of the canals and rail-roads of the Commonwealth and charged with toll.

. The annexed copies of reports from the superintendents of the Columbia and Allegheny Portage rail ways are respectfully submitted.

These reports contain the information required in detail, as far as the same can be accurately ascertained, and it appears from them that there has been saved to the state in consequence of the facilities afforded by the improvements in the transportation of materials, the sum of seventy-one thousand five hundred and seventy-six dollars and forty cents; but this sum is far short of the actual amount saved. The low prices at which contractors were enabled, in many instances, to take the public work in 1831, affords conclusive evidence of the fact that they regulated their prices with a proper view to the facilities which would be afforded to them by the works then completed.

As the Portage rail way is located along the slope of the Allegheny mountain, through uncultivated land, a great portion of the supplies required by the contractors, had to be procured at Johnstown—and had to pass a greater or less distance upon the canal to that point, and paid toll to the State. The facilities thus afforded by the canal, could not fail to have the effect of reducing the prices at which the work was taken. In the construction of the second track which was let after the first was completed, the saving to the State must be greater than that on the first track, as the facilities afforded by the first track for transporting materials and provisions necessarily entered into the estimates of contractors at the time they bid for the work—of the amount thus saved to the State, it is apparent no exact calculation can be made.

On the Columbia rail way the saving to the state is not so great as on the Portage rail way, as it is located through a populous section of the country, affording an abundance of all the necessary supplies to enable contractors to carry on the work. The fact however has been ascertained that where contracts for making the second track were abandoned, they were subsequently re-let at lower prices. And in many instances contractors sunk money in the completion of the first track, but saved themselves in completing the second, showing plainly that they had taken into their calculations the facilities which would be afforded them by the completion of the first track.

The state has also saved money in the construction of canals authorized by the act of 1831, by the facilities afforded by portions of canal finished prior to that date, and particularly in the construction of the Wyoming line; a large portion of the supplies for the workmen and all the lime used in the works on this line were transported from 13 to 17 miles on the canal, and paid toll to the state. These facilities it cannot be doubted were taken into consideration by the contractors who bid for the work.

By order of the board,
J. MITCHEL, Canal Commissioner.
Canal Commissioners' Room, Monday, January 8, 1835.

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RAIL WAY OFFICE,
LANCASTER, January 5, 1835.

JAMES CLARKE, Esq.
President Board of Canal Commissioners.

Sir:—In compliance with the request of your board accompanying a resolution of the House of Representatives of the 18th December 1834, relative to the amount saved to the state in the construction of the public improvements by the facilities afforded by them, &c. I beg leave to submit the following report.

There have been used on the second track of the Columbia rail way 24,371 locust cross sills, which were transported on the rail way an average distance of 35 miles, costing by the rail-way including the tolls paid to the state 16 cents each. To have conveyed them the same distance by wagons on the turnpike, they would have cost 36 cents each, making a difference of 20 cents, which amount it is fair to infer has been saved to the state. As the competition in procuring contracts induced bidders to calculate the lowest prices at which materials could be delivered, and had contractors not calculated on delivering those ties for the second track on the rail way, it is evident the state would have had to pay 20 cents additional cost of transportation.

Then 24,731 sills at a saving of 20 cents on each would amount to	4,946 20
4000 sills were purchased at Columbia, for the repairs of the eastern 22 miles upon which (after paying tolls) the state saved 25 cents on each	1,000 00
3936 tons of rail way iron transported on the rail way at a saving of $1 25 per ton after paying toll	4,920 00
Amount saved in construction	$10,866 20

To the above might fairly be added the advantages resulting to the contractors, from the use of the first track in conveying the broken stone from one part of their sections to another, and which no doubt, entered into their calculations in the arrangement of their prices, but to what amount there are no data on which to found a calculation.

The advantages which will result to the state from the use of timber so durable as locust, could not have taken place had it not been for the facilities afforded by the state canals for transporting them; the entire quantity used was brought upon the canal from different points between Raystown Branch and Hollidaysburg, and many of them were brought from the west side of the Allegheny mountain and conveyed to Hollidaysburg by the western canal and Portage rail way.

Respectfully submitted,
W. B MITCHELL,
Superintendent Columbia rail way.

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RAIL WAY OFFICE.

HOLLIDAYSBURG, Jan. 2, 1835.

JAMES CLARKE, Esq.

President of the Board of Canal Commissioners:

Sir:—In pursuance of the instructions of the board, and a resolution of the House of Representatives, I herewith transmit you a statement, which I consider a fair estimate of the amount of money saved to the State in the construction of the public improvements by the facilities afforded by them in transporting materials for the Portage rail way:

The quantity of edge rails and chairs delivered for the first track, was 2601 tons—the distance carried on the Pennsylvania canal being from Portsmouth to Hollidaysdurg, 152 miles; The average price was 5¼ cents per ton per mile, or $7 98 per ton for the whole distance, Total cost,	$20,755 98	
To deliver the same quantity by wagons from Portsmouth to Hollidaysburg, the price could not be less than $20 per ton, the whole cost therefore, would be	52,020 00	
Hence on 2601 tons there was a saving to the State of		31,264 02
The quantity of edge rails delivered for the second track, by canal and rail way, say 170 miles from Portsmouth was 1617¼ tons, the average price was 5½ cents per ton per mile, or $9 35 per ton for the whole distance.—Total cost,	15,121 35	
To deliver the same quantity the same distance by wagons would have cost $22 per ton, or	35,579 50	
Saving to the Commonwealth on second track,		20,458 15
Entire saving on the carriage of rails and chairs,		$51,722 17
The cost of American chairs for the first track was $69 50 per ton. But by reason of the facilities afforded by the public improvements, and decrease in the price of metal, the chairs for the second track were delivered at an average of $55 93 per ton, making a difference of $13 57. Upon allowing $4 per ton for the decrease in the price of metal and there will be a saving to the commonwealth, because of the non-employment of wagons of $9 57 per ton. This sum on 600 tons will give a total saving to the State of		5,742 00

The ropes and miscellaneous articles transported from Portsmouth to the Portage amounted to 98½ tons.—These could not have been carried on wagons under $22 per ton, making the sum of	$2,167 00	
Whereas the same were carried by canal and rail way at an average of $9 35 making,	920 97	
Thereby saving to the State,		1,246 03
On the first set of stationary engines transported to the Portage, the saving was inconsiderable, as many of them had to be transported by land from Blairsville.—The average saving, however, on the second set may be put down at $200 each, which multiplied by ten gives		2,000 00
Total saving to the Commonwealth on materials purchased for the Portage rail way and transported on the public improvements and paying toll,		$60,710 20

Respectfully submitted,
S. JONES, Superintendent.

PUBLIC MEETING.

In pursuance of public notice given, a large and respectable meeting was held by the Tax-payers of Bucks county, at the public house of Joseph Cowell, in Point Pleasant, on the first day of January, 1835, in order to oppose the daming of the river Delaware, at the head of Wells' Falls, as recommended by the Commissioners appointed by the States of Pennsylvania and New Jersey, relative to the use of the water of the river Delaware; when on motion

Col. DANIEL BOILEAU, of Tinicum, was appointed President, and

JOHN LEWIS, of Plumstead, and JOHN DERR, of Nockamixon, Vice Presidents, and

John N. Solliday, Esq. of Tinicum, and *Thomas Pursell*, of Nockamixon, Secretaries.

The object of the meeting being stated by the President—on motion a committee consisting of the following named persons, were appointed to draft resolutions expressive of the sense of this meeting, viz:—Joseph Hough, Esq. Barnet Snyder, Cephas Ross, Nicholas Swartz, Oliver Hampton, Stephen K. Price, William Youngken, Isaac B. Williams, Jesse Thomas, Esq. Pursley Tintsman, Jonas Worman, Dr. Watson P. Trego, Jesse Riegle, and Isaac Laubenstine. The committee having retired about an hour, when they returned and presented the meeting with the following preamble and resolutions, which were unanimously adopted.

Whereas, in pursuance of resolutions passed by the Legislature of Pennsylvania, Commissioners were appointed to act in conjunction with Commissioners appointed by similar resolutions of the Legislature of the Commonwealth of N Jersey, relative to use of the waters of the Delaware river, who have made report of their examinations and inquiries respecting said river together with an agreement, made and concluded, between the joint Commissioners on the part of each State to the Governor who has transmitted the same to the Legislature.

And Whereas, the free navigation of the river Delaware is of vital importance to those living on the borders of it, from its head waters to tide, as well as the whole community in general, it becomes us whenever an attempt is made to affect its free, natural channel, which has been used in common, by all citizens, as a great public highway from the earliest settlements of the country until the present time, to call upon the Legislature to protect the free descending and ascending navigation of said river.

And Whereas, the said Commissioners have recommended and agreed upon a dam at the head of Wells' Falls, which will materially affect the channel, and totally destroy the shad fisheries, which are very valuable, upon the river, which have always been protected by the laws of the adjoining States, and particularly, by the compact of 1783, entered into by Pennsylvania and New Jersey.

And Whereas, the Lumbering trade, which is the most important that descends the river, would be materially injured by the erection of the dam—they having experienced, to their great disadvantage, the effects of a dam at the mouth of Lackawaxen, with a sluice, where there has been hundreds and thousands of dollars worth of lumber destroyed by descending with rafts over the sluice of said dam, but there the raftmen have a partial remedy, as they can recover damages from the Company, which a da n at Wells' would entirely defeat—of recovering damages for injuries sustained, as the losers could not recover damages from the Commonwealth, by suit.

Therefore Resolved, That it is inexpedient to erect a dam in the river Delaware for the following reasons, viz:

1st. Because there is now, when the canal is in navigable order, a full supply of water, which experience has taught us the last season, as the river has been lower, take the whole season together, perhaps, than it has been for the last 30 years.

2d. Because there has been a water power erected at the head of Wells', at a great expense, to raise water out of the river into the canal, and if it should ever be necessary to raise more at any time, there is room left, purposely, for an additional wheel which will raise double the quantity of water now raised, which will not cost, exceeding, $500 (which has been attested by the contractor who done the work) thereby raising more water than is actually wanted, without any further interference with the channel of the river.

3d. Because if the whole machinery for raising water was destroyed, a permanent feeder is practicable without interfering with the navigation of the river by extending a wing from the head of Wells' Falls to Phillip's ripples, which will cost less than by any other mode, and furnish an ample supply of water at all times.

4th. Because the erection of a dam in the river Delaware, at the head of Wells' Falls, would materially affect the free navigation of the river, destroy the shad fisheries, and otherwise materially injure the free trade of the river.

5th. Because the compact of 1783 guaranteed and gave certain rights to fisheries which will be totally destroyed by the compact now in contemplation, without ever making any provision for them.

6th. Because there is a sufficiency of water in the canal, as will be attested by every waterman, and that there is more water wasted by over falls and leakage, which may be stopped, at a small expense, than will supply two outlet Locks, thereby not interfering with the free navigation of the Delaware.

7th. Because there are many honest and industrious citizens, considering the good faith of the Commonwealth to protect them, have, at a heavy expense, cleared fisheries, which will be entirely destroyed by the erection of the contemplated dam.

8th. Because we do not believe in misrepresentation—it is upwards of 26 miles from Easton to Black's Eddy, and not more than 8 miles from thence to Newhope, and by a reference to a letter accompanying the report

it would appear that it was only 25 miles to Black's Eddy; and 10 miles thence to Newhope.

9th. Because there has been misrepresentations from interested individuals presented to the Commissioners as well as to members of the Legislature, as an instance the letter above alluded to will shew, (there is no evidence that the information given was asked for, but gratuitously given, which is believed to be erroneous,) the principal topic in the letter is limestone, and for the information of the Legislature, we state that there is more limestone in the vicinity of Durham and Easton than there is at Newhope, and can be burned and delivered cheaper, and the Commonwealth will receive the benefit of the tolls on it for 35 miles, instead of a dam to accommodate Limeburners in the vicinity of Newhope, to convey their limestone across from Newhope to New Jersey, free of toll.

10th. Because this interference in the free navigation of the river has never been asked for by citizens acquainted with the facts; but if asked for at all, it has been privately and by individuals through sinister motives.

11th. Because we are more willing to believe those most interested in the navigation of the river and canal, than we are those interested in projects for their own benefit, to be made at the expense of the State, and the tax-payers to pay for them.

12. Because the citizens along the river were almost unanimously opposed to the canal, but give their assent in preference to having the river damed or obstructed by slack water navigation, as was proposed.

13th. Because a dam and outlet at New Hope would be attended with loss to Pennsylvania in the amount of toll, as boats constructed to pass the Jersey canal cannot pass into our canal, but our boats can pass out of our canal into that of New Jersey, so that the balance of trade would be against the interests of Pennsylvania.

Therefore, Resolved, That a committee of correspondence be appointed to forward these proceedings to Harrisburgh, and correspond generally upon the subject—also a committee of vigilance in each of the upper townships, to circulate petitions and get signatures: whereupon the following persons were appointed. On motion

Resolved, That the officers of the meeting be added to the committee of Correspondence.

The committee of correspondence consists of the following named persons:

Col. Daniel Boileau	John Lewis
John Derr	John N. Soliday
Thomas M. Pursell	Wm. Long, Esq.
Michael Fackenthall, jr.	John Adams, Esq.
Samuel Carrell	Joseph Hough, Esq.
Casper Hinkle	Cephas Ross
John Ruckman	Isaac B. Williams
Cyrus Livezey.	

The Committee of Vigilance consists of the following named persons:

Springfield.

John Houpt	Andrew Apple.
Dr. Francis L. Bodder	Daniel Afflerback
Jacob Treichler.	

Haycock.

Christian Bertels	Samuel Afflerback
John Sellers	Maj. Christian Man
Maj. John Stoneback.	

Bedminister.

Henry Eekel, Esq.	Jacob Kramer
Col. George Hager	Jacob Beidler
Jacob Kichline.	

Rockhill.

Jacob Worman	Thomas Sellers
Andrew Walter, Esq.	Isaac Cassell
Henry Hartzel.	

Milford.

Joseph Himmelwright	David Drissell, Esq.
Jacob Clymer, Esq.	Philip Ball ?
Jacob Bleiler.	

Solebury.

John E. Kenderdine	Charles Rice
Charles D. Fell	Jonathan Ely, Esq.
John T. Neely.	

Plumstead.

Michael Walter, Esq.	Dr. Wm. James
John Dyer	Smith P. Jones
Christian Myers	

Tinicum.

George Wyker	John Lutz
Peter T. Barntz	Abraham Worman
Peter Bloom.	

Nockamixon.

Rev. Henry Miller	David White
Nicholas Buck	Col. Jacob Kintner
Jacob Stover.	

Durham.

M. Fackenthall, Esq.	John H. Johnson
Dr. Merrick	Samuel Long, Esq.
John Mills.	

Warwick.

James Cummings, Esq.	Hugh Mearns
Col. Wm. Addis	Christopher Bloom, Esq.
Daniel Harley.	

Buckingham.

Wm. Fenton Esq.	John Simpson, Esq.
Wm. Watson, Esq.	Dr. Silas Beans
Maj. Henry Carver.	

Richland.

Daniel Shive, Esq.	Caleb Foulke, Esq.
Col. John Matts	Anthony Amey
Abel Lester.	

Hilltown.

Wm. H. Rowland, Esq.	Abel H. James
Rev. Joseph Mathias	Griffith Jones
Thomas Campbell.	

New Britain.

Maj. James Wier	Capt. Robert M'Kinstry
Capt. John Robbarts	Jame Polk
Henry Walter.	

Doylestown.

Hon. Matthias Morris	Gen. Samuel A. Smith
Henry Chapman, Esq.	David Riale, Esq.
Nathaniel Shewell, Esq.	

Warrington.

Robert Thompson, Esq.	William H. Long
Francis G. Lukens	Jones Walter
Philip Brunner.	

Resolved, That the proceedings of this meeting be signed by the officers, and published in the papers of the county of Bucks, Northampton, Pike and Wayne; also in the Americal Sentinel, and United States Gazette.

DANIEL BOILEAU, President

JOHN LEWIS, JOHN DERR, } Vice Presidents.

JOHN N. SOLLIDAY, THOMAS PURSELL, } Secretaries.

A WILD CAT.—A large animal of the above kind, was killed on the Conowago hills, 1½ miles from York Haven, York county, on Saturday last. After some chase the animal "treed," the hunters assembled near, and after seven discharges brought the "critur," wounded to the ground, among the dogs, (five in number,) all of which it would have whipped, and sped its way, but for the interference of the hunters.—*York Gazette.*

The Schuylkill broke up on Thursday night. The Delaware was fast yesterday.